May 18, 1948. G. H. BURT 2,441,929

LAMP HOLDER FOR FLUORESCENT LAMPS

Filed Aug. 19, 1944 2 Sheets-Sheet 1

Fig. 1.

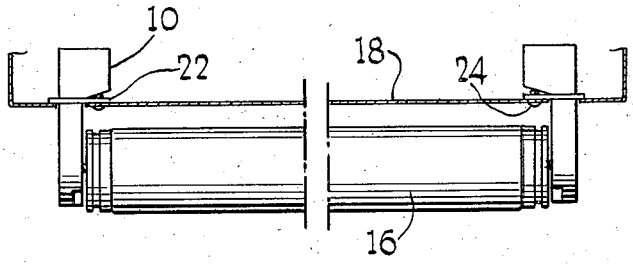


Fig. 2.

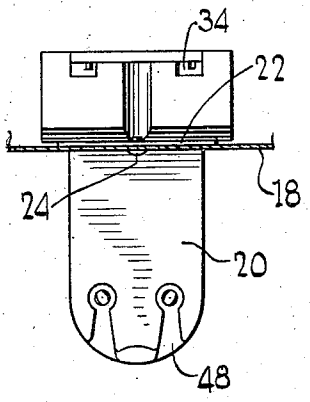


Fig. 5.

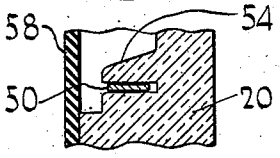


Fig. 4.

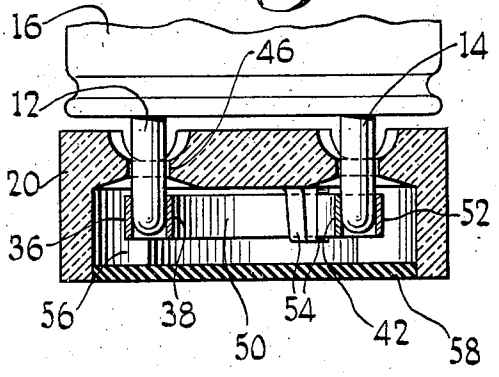
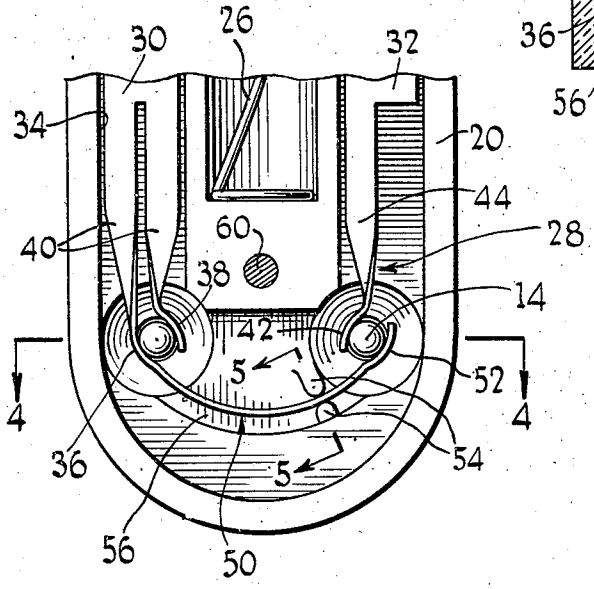


Fig. 3.



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Fig. 6.

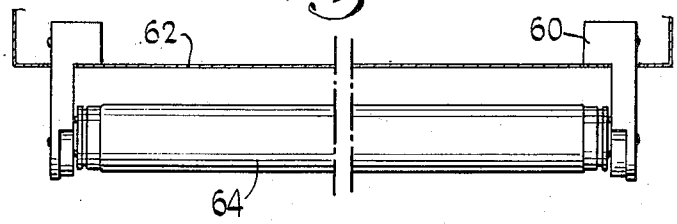


Fig. 7.

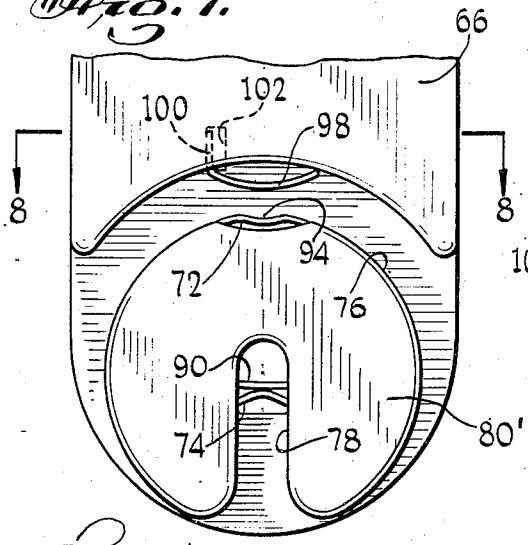


Fig. 8.

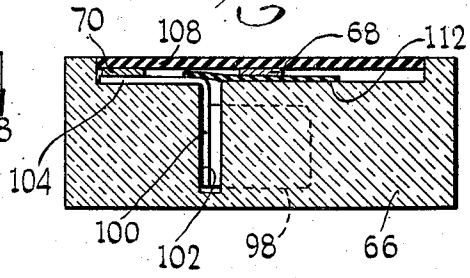


Fig. 9.

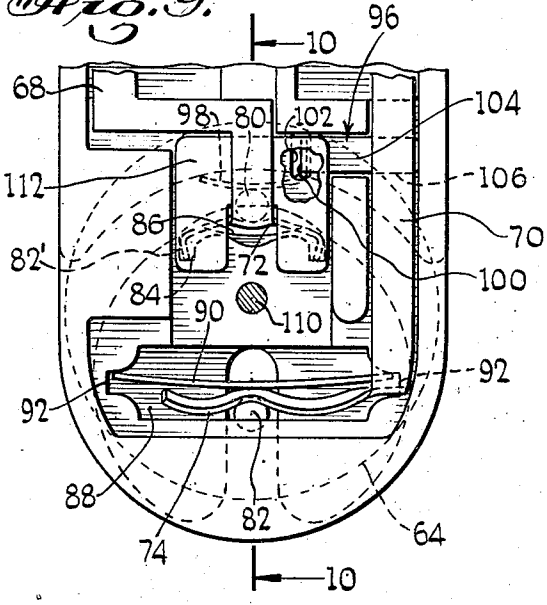
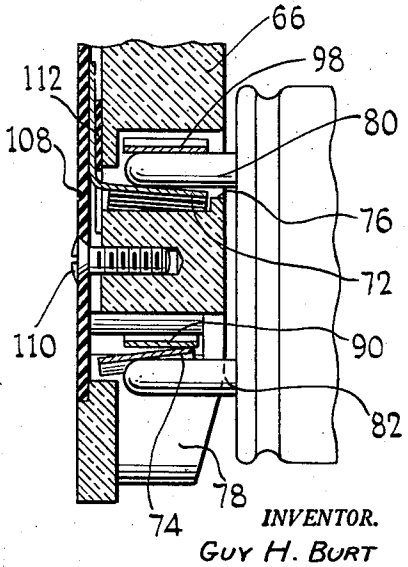


Fig. 10.



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Patented May 18, 1948 2,441,929

UNITED STATES PATENT OFFICE

2,441,929

LAMP HOLDER FOR FLUORESCENT LAMPS

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Application August 19, 1944, Serial No. 550,170

6 Claims. (Cl. 173—328)

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This invention relates to lampholders. More specifically, it pertains to lampholders for individually supporting and supplying power to the ends of an elongated electric illuminating device, such as a fluorescent electric discharge lamp, by coaction with projecting pins on the ends thereof, and for short circuiting said pins upon insertion of the lamp.

It is the principal object of the invention to provide a lampholder of the character described in which the short circuiting current is passed through only one of the lamp contact pins, thereby effecting an extremely simple construction which can be made at but a slight advance in cost over that of a conventional non-short circuiting lampholder.

More specifically, it is object of the invention to provide a short circuiting lamp holder of the character described which operates in the foregoing fashion regardless of the manner in which the lamp is inserted.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts which will be exemplified in the constructions hereinafter described, and of which the scope of application will be indicated in the claims.

In the accompanying drawings, in which are shown various possible embodiments of this invention,

Fig. 1 is a side elevational view of a pair of push-type lampholders embodying the invention, mounted on a support and cooperatively holding a fluorescent electric discharge lamp;

Fig. 2 is a front view of one of said lampholders;

Fig. 3 is an enlarged rear view of the lamp engaging end of the lampholder with the back cover plate removed to expose the interior construction;

Figs. 4 and 5 are sectional views taken substantially along the lines 4—4 and 5—5 of Fig. 3;

Fig. 6 is a view similar to Fig. 1 of a pair of twist-type lampholders embodying a modified form of the invention;

Fig. 7 is an enlarged front view of the lamp engaging end of one of the lampholders shown in Fig. 6 with the lamp removed;

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Fig. 8 is a sectional view taken substantially along the line 8—8 of Fig. 7;

Fig. 9 is a rear view of the back of said lampholder with the back cover plate removed to expose the interior construction; and

Fig. 10 is a sectional view taken substantially along the line 10—10 of Fig. 9.

In general, the foregoing objects of the invention are carried out by providing a short circuiting member which is electrically connected to one of the lampholder blades, is insulated from the other lampholder blade, and has a contact portion disposed close to but out of contact with said other lampholder blade and in such position that when the two pins at one end of a fluorescent electric discharge lamp are inserted in the lampholder one of the pins will contact both a lampholder blade and said contact portion, which remains spaced from said blade, whereby to effectively short circuit the two lamp pins through one of said pins. Although the invention is not to be so limited, in the preferred forms thereof herein illustrated and described, the short circuiting pin is directed upon insertion thereof into the lampholder into a space between said other lampholder blade and the contact portion of the short circuiting member, said space being less than the diameter of a lamp pin, and said blade and contact portion being so mounted or constructed that they will be resiliently urged apart by the insertion of the lamp pin therebetween, whereby to insure good electrical contact.

Referring now to the drawings, and more particularly to Figs. 1 through 5, the novel short circuiting means is shown there embodied in push-type swinging lampholders 10, such as are described in application Serial No. 529,483, for Lampholders, filed April 4, 1944, by George H. Dansereau, owned by the assignee of the instant application. These lampholders are in general characterized by their free pivotal movement towards and away from the ends of a fluorescent lamp and by the presence of a mechanism for resiliently urging the lampholders into coupling engagement with the projecting lamp pins 12, 14. Said lampholders support a conventional instant-starting fluorescent lamp 16 and are carried by a base 18 which also houses the usual ballast and wiring (not shown) associated with a lamp of this nature.

The lampholder includes a body 20 of insulating material, a mounting plate 22, which is rigidly secured to the base 18 by a screw 24, and is pivotally attached to the body 20 in a manner more fully described in said copending application, a spring 26 for resiliently urging the body into coupling engagement with the lamp pins 12, 14, and contact means 28 to effect a detachable electric connection between said pins and a source of electric power.

Said last named means includes a pair of electrically conductive strips 30, 32 of resilient material, for example, Phosphor bronze, which are received in shallow depressions 34 running longitudinally of the body 20 at the back thereof. These strips are suitably anchored in the body and provided with binding posts 34 which are adapted to function as terminals for connecting power leads to the lampholder.

The strip 30 carries a pair of opposed concave wiping contact blades 36, 38, the same being connected to said strip by spaced oppositely twisted fingers 40 which permit said blades to be resiliently forced apart upon the entry of a lamp pin 12 therebetween. The other strip 32, for a reason soon to be apparent, has only a single concave wiping contact blade 42 connected to said strip by a twisted finger 44 which allows the blade 42 to be resiliently moved towards the blades 36, 38. Said blade 42 is so disposed as to lie in the path of travel of the lamp pin 14 upon insertion of the lamp in the lampholder 10 whereby it will slidingly engage the external cylindrical pin surface.

The lamp pins 12, 14 are guided into apertures 46 registered with the blades 36, 38, 42 by inclined grooves 48 on the face of the lampholder.

The lamp 16 is inserted in the lampholders 10 by aligning its pins with the grooves 48 and then pushing the lamp toward the base 18. This forces the lampholders to rock outwardly until the pins 12, 14 are in line with the apertures 46, whereupon the lampholders, under influence of springs 26, rock back into coupling engagement with the lamp, thrusting said pins into the apertures 46 and into wiping engagement with the blades 36, 38, 42.

Pursuant to the invention, a novel short circuiting means is embodied in each of the lampholders 10. Said means includes an electrically conductive member 50 electrically connected to the strip 30 and having a contact portion spaced from the contact blade 42 and yet designed to slidingly engage the lamp pin 14. Said member 50 may, like the strips 30, 32, comprise a strip of electrically conductive resilient material, e. g., Phosphor bronze, and can be fabricated conveniently as part of the strip 30 in the manner illustrated in the embodiment of the invention now being described, although it will be appreciated that this member alternatively may be connected physically and electrically to the strip 30 in other ways, for example, by welding or riveting, or even be wholly separate from the strip 30 physically and connected electrically thereto by a lead wire. However, in the form of the invention under consideration, it is convenient to have the member 50 integral with the strip 30 and, more particularly, integrally connected to the free end of the contact blade 36. Said member 50 extends in the general direction of the contact blade 42 and terminates in a contact portion 52 which, as illustrated, may have a convex surface designed to slidingly engage the pin 14. The contact portion is spaced away from the blade 42

slightly less than the diameter of the lamp pin 14 so as to lie on the opposite side of the pin 14 when the lamp is inserted in the lampholder. Although the contact portion 52 is shown as in opposition to the blade 42 (Fig. 4) to save space, it will be understood that in accordance with the invention, it is only necessary for it to be so disposed that it will contact the pin 14 after insertion of the lamp without contacting the blade 42.

Because of the inherent resiliency of the member 50, the contact portion 52 will press against the pin 14 when said pin is inserted between the contact blade 42 and said contact portion. It may be desirable, however, due to the rather long span between the contact portion 52 and the end of the member 50 integrally connected to the contact blade 36, to anchor said member 50 near the contact portion 52. For this purpose, I may fix a segment of the portion 50 near the contact portion 52 between two bosses 54 on the lamp body 20. This causes the contact end of the member 50 beyond said bosses to act as if provided with a cantilever support at the bosses, and thus increases the resilient effort tending to maintain the contact portion 52 in engagement with the pin 14.

In order to accommodate the member 50, the body 20 is hollowed out, as indicated at 56. The rear of the lampholder is covered by the usual back plate 58 held in place by a screw 60.

It will be seen that the short circuiting current passes from the strip 30, through the contact blade 36, member 50, contact portion 52, pin 14, and contact blade 42 to the strip 32. Thus, the shorting current only passes through one lamp pin. This appreciably reduces the number and complexity of parts required for short circuiting in comparison with other short circuiting lampholders.

In Figs. 6 through 10, the novel short circuiting means is shown embodied in twist type lampholders 60 such, for example, as those shown in United States Letters Patent No. 2,282,281, issued May 5, 1942. Said lampholders are mounted on a standard base 62 and support an instant starting fluorescent lamp 64. Each lampholder includes a body 66 of insulating material which is made fast in conventional manner to the base. The rear of the body is suitably grooved to receive a pair of electrically conductive strips 68, 70 which terminate in contact portions or blades 72, 74, respectively.

The blade 72 is bowed and projects from the rear to adjacent the front of the body where it is disposed in a side wall of an arcuate slot 76. Said slot is concentric with the base of a straight slot 78, also provided in the front of the body 66. The other blade 74 extends from the rear to adjacent the front of the body where it is disposed near the base of said straight slot. The blades 72, 74 are spaced apart a distance greater than that between the lamp pins 80, 82 so that they may be forced together by said pins whereby to cause said blades to press against the pins when the lamp is in position.

One or both of the blades is arranged to be resiliently biassed to idle position when deflected toward the center of the circular land 80 formed by the slot 76. To this end, the contact forming portion at the tip of the blade 72 comprises a transversely extending ribbon whose ends 82 (Fig. 9) are turned down into apertures 84 at the rear of the lampholder body, the central portion of said ribbon spanning a depression 86 to-

wards whose bottom the contact can be freely urged when the lamp is inserted in the lampholder. The other contact 74 is disposed in a recess 88 opening at the rear of the lampholder. Said contact is backed up by a leaf spring 90 spanning said recess and having its ends received in grooves 92.

The lamp 64 is inserted in the lampholder 60 by disposing the pins 82 at each end of the lamp adjacent the bases of the straight slots 78 and then twisting the lamp so as to cause the other pins 80 to ride in the arcuate grooves 76 until the pins 80 reach the blades 72. As said pins travel through the slots 76, the pins 82 will depress the contacts 74 against the action of the springs 90. When the blades 72 are initially reached, they will be depressed toward the bottom of the recesses 86, relieving some of the pressure on the springs 90. The centers of the blades 72 are indented, as at 94, to lock the lamp against inadvertent displacement with the pins 80 in desired position. When the pins 80 reach the centrally disposed indentations 94, more pressure is released from the springs 90 which, however, are still sufficiently strained to maintain an efficient contact pressure of the blades 72, 74 on the pins 80, 82, respectively.

The short circuiting means embodying the invention in the twist type lampholder just described comprises a resilient electrically conductive strip of sheet material 96 electrically connected to the strip 70 and having a bowed contact portion 98 spaced from the contact blade 72 and yet designed to slidingly engage the lamp pin 80, preferably at a point diametrically opposite to the point engaged by the blade 72. Said contact portion 98 lies in the arcuate groove 76, being disposed in the side wall thereof opposite to that to which the contact blade 72 is provided. The free end of the contact portion rests upon the side wall of said groove. Said short circuiting member 96 has an offset portion 100 integral with the contact portion 98 and extending rearwardly therefrom through a hole 102 in the lampholder body 66. This offset portion is connected at the rear of the body to a shank 104 whose free end 106 is disposed beneath the conductive strip 70. Said shank and conductive strip may be welded together or may be merely pressed together between the body 66 and the back cover plate 108, the latter being held in position by a screw 110.

To facilitate holding the short circuiting member 96 in place, I may also employ an insulating panel 112 which overlies the shank 104 of said short circuiting member and is sandwiched between this shank and the other electrically conductive strip 68 (see Fig. 8).

The space between the contact portion 98 and the blade 72 at the indentation 94 is slightly less than the diameter of the lamp pin 80; however, by bowing said blade and contact portion and supporting both their ends, sufficient resiliency is imparted to ensure good electrical contact.

It will be understood that, as in the first embodiment of the invention, short circuiting current passes from one terminal of the source of power supply through the blade 72, lamp pin 80, and short circuiting member 96, to the blade 74 and the other terminal of the source of power supply.

It will thus be seen that there are provided lampholders which achieve the several objects of the invention, and which are well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described the invention, I claim as new and desire to secure by Letters Patent:

1. A lampholder of the character described for an electric lamp having a pair of projecting pins on each end thereof, said lampholder including a pair of blades, means to support said blades in spaced insulated relationship, and means to short circuit said blades when a lamp is inserted in said lampholder, said short circuiting means including an electrically conductive short circuiting member electrically connected to one of said blades and extending across toward but not into contact with the other of said blades, said member having a contact portion near said other blade and spaced therefrom transversely of the direction of travel of a lamp pin of a lamp being inserted into the lampholder, whereby said lamp pin upon insertion will be disposed between and engage both said other blade and said contact portion.

2. A lampholder of the character described for an electric lamp having a pair of projecting pins on each end thereof, said lampholder including a pair of blades, means to support said blades in spaced insulated relationship, and means to short circuit said blades when a lamp is inserted in said lampholder, said short circuiting means including an electrically conductive strip having one end integrally connected to one of said blades and the other end formed into a contact portion which is near yet spaced from the other blade transversely of the direction of travel of a lamp pin of a lamp being inserted into the lampholder, whereby said lamp pin upon insertion will be disposed between and engage both said other blade and said contact portion.

3. A lampholder of the character described for an electric lamp having a pair of projecting pins on each end thereof, said lampholder including a pair of blades, means to support said blades in spaced insulated relationship, and means to short circuit said blades when a lamp is inserted in said lampholder, said short circuiting means including a resilient electrically conductive strip integrally connected at one end to one of said contact blades and extending toward the other of said contact blades, the free end of said strip comprising a contact portion which is spaced from the other blade transversely of the direction of travel of the pin of a lamp during insertion into the lampholder, whereby said lamp pin upon insertion will be disposed between and engage both said other blade and said contact portion, said strip being supported by the lampholder near said other blade to provide a point from which said contact portion may resiliently flex so as to be biassed against the lamp pin.

4. In combination with an electric lamp having a pair of projecting pins at each end thereof, a lampholder having at least one groove in the face thereof through which one of the lamp pins is adapted to travel during insertion of a lamp into the lampholder, said lampholder including a pair of blades, means to support said blades in spaced insulated relationship with at least one of said blades disposed at a side of said groove, and means to short circuit said blades when a lamp is in-

serted into said lampholder, said short circuiting means including a short circuiting member electrically connected to the other of said blades and having a contact portion lying in said groove opposed to said one blade and spaced therefrom a distance less than the diameter of said pins.

5. A combination as set forth in claim 4 wherein the groove in the lampholder is arcuate.

6. A combination as set forth in claim 4 wherein the lampholder is provided with means to lock the lamp against inadvertent displacement in a position in which a lamp pin is disposed between

the one blade and the contact portion of the short circuiting means.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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2,313,036	Burt	Mar. 9, 1943