Dec. 19, 1950 F. C. DAZLEY 2,534,955

LAMP HOLDER FOR CIRCULAR LAMPS

Filed Oct. 23, 1945 2 Sheets-Sheet 1

Fig. 1.

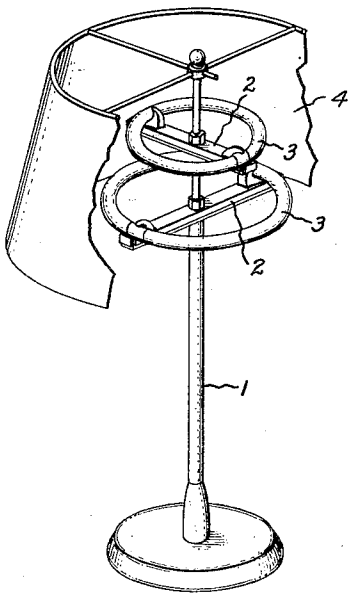


Fig. 2.

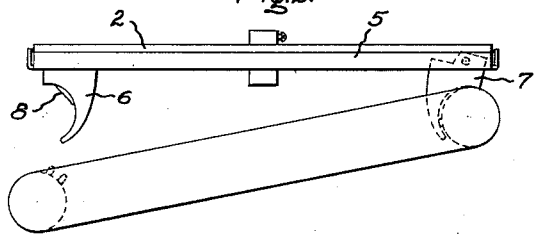


Fig. 3.

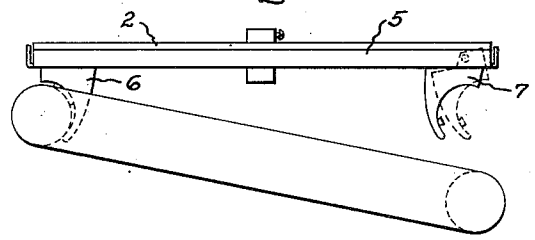


Fig. 4.

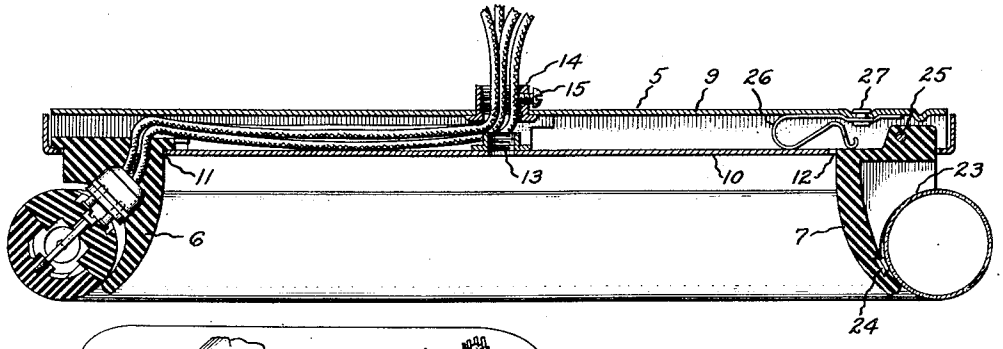
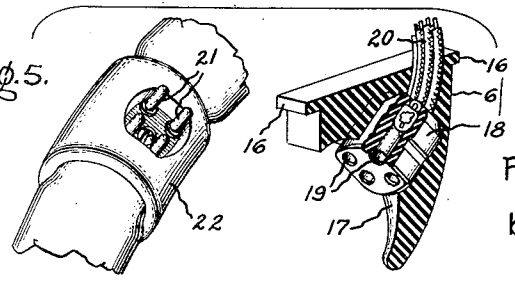


Fig. 5.



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Filed Oct. 23, 1945 2 Sheets-Sheet 2

Fig. 6.

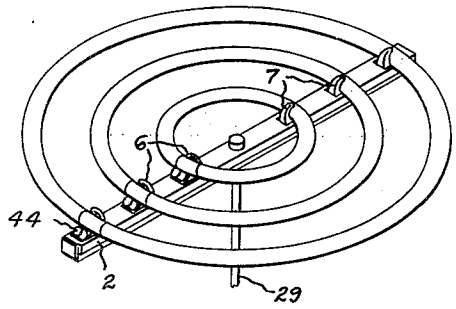


Fig. 7.

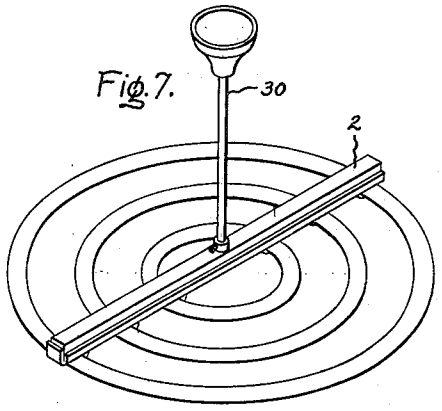


Fig. 9.

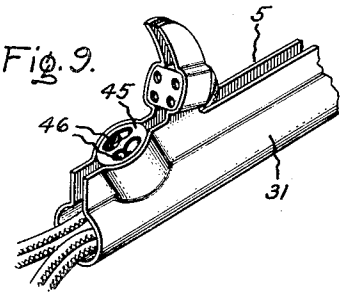


Fig. 8.

Fig. 10.

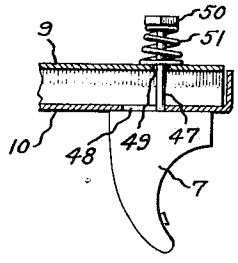
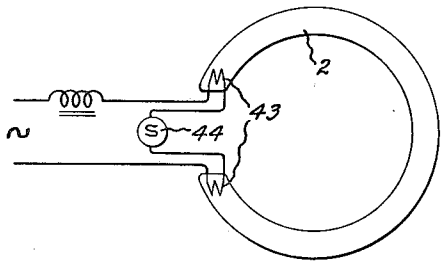


Fig. 11.



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Patented Dec. 19, 1950

2,534,955

UNITED STATES PATENT OFFICE

2,534,955

LAMP HOLDER FOR CIRCULAR LAMPS

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Application October 23, 1945, Serial No. 624,036

5 Claims. (Cl. 240—51.12)

1

My invention relates to a lamp holder for circular lamps of the tubular gaseous discharge type, such as circular fluorescent lamps of the type now coming on the market.

Tubular lamps which are formed as a loop such as a circle are generally provided with a contact base at one place in the periphery of the lamp tube. The contact base is usually formed as a tube to provide a continuation of the lamp tube and has extending radially contact pins, whereby electrical connections are made to the lamp electrodes. A lampholder for such a lamp thus must include not only mechanical support structure for supporting the lamp, but also electrical contacts elements for making the necessary electrical connections to the contact base of the lamp. It is important that such a lampholder be sturdily constructed so that it will effectively support the lamp; at the same time it must operate easily and positively for easy lamp replacement. Accordingly, it is a primary object of my invention to provide an improved lampholder for circular lamps which will satisfy these requirements.

It is another object of my invention to provide a lamp holder for supporting a plurality of circular fluorescent lamps of different diameters.

It is still another object of my invention to provide a lamp holder which is particularly adapted for use in a wide variety of lighting fixtures such as floor lamps, ceiling fixtures, wall brackets, or the like, and in which a plurality of lamp holders may be assembled together in various ways to give a pleasing decorative design.

It is a further object of my invention to provide a lamp holder for circular fluorescent lamps having incorporated therein an electrical connector or receptacle for receiving the starting switch mechanism customarily utilized in starting such fluorescent lamps.

Briefly stated in accordance with my invention a lampholder for circular lamps is constructed with a supporting bracket from which two or more lamp engaging projections extend. One of these projections is provided with electrical contact receptacle means; and one of them is movable and is spring-tensioned to hold the lamp firmly in position and to assure adequate connection between the receptacle means and the contacts in the lamp base.

In the accompanying drawing, Fig. 1 shows a plurality of lamp holders constructed in accordance with my invention and supporting a plurality of circular fluorescent lamps in a table lamp fixture; Figs. 2 and 3 illustrate ways in which the lamp may be mounted in the holder;

2

Fig. 4 is a sectional view through the lamp holder with a circular lamp mounted in position thereon; Fig. 5 is an exploded view showing the lamp base and part of the holder in section: Fig. 6 is a view of a lamp holder constructed in accordance with my invention and which is particularly adapted to support a plurality of circular lamps of different diameters; Fig. 7 is a view of the lamp holder shown by Fig. 6 supported from a ceiling bracket; Fig. 8 is a perspective view, partly in section, of a modified form of lamp holder; Fig. 9 is a perspective view of the lamp holder of Fig. 8 with the addition of an electrical connector for receiving a lamp starting switch mechanism; Fig. 10 illustrates another modification of the lamp holder structure; and Fig. 11 is a diagrammatic view showing the operating circuit of the lamp.

Referring to the drawing, Fig. 1 illustrates a table lamp 1 provided with a plurality of lamp holders 2 constructed in accordance with my invention and which carry a plurality of circular fluorescent lamps 3. The lamp holders are arranged one above the other on the supporting stem of the lamp and the lamps are shielded by the usual shade 4.

As shown in Figs. 2 and 3, the lamp holder 2 comprises a supporting member or bracket 5 which is adapted to extend across or span the loop of the lamp. It is provided with two arms or projections 6 and 7 which extend laterally from the bracket and which are adapted to engage the periphery of the lamp for supporting the lamp on the holder. One of the laterally extending arms, in this case the arm 7, is made movable with respect to the supporting bracket so that the arms may be moved together relatively to each other for insertion in the loop of the lamp. Although the arm 7 is the movable one, the arm 6 may be made movable equally as well. The other arm 6 carries an electrical connector 8 for making an electrical connection with the base of the lamp. In mounting the lamp in position, the loop of the lamp may be pressed against the arm 7 and then the base snapped into position on the supporting arm 6 with the lamp contact pins engaging the connector. This procedure is illustrated in Fig. 2. On the other hand, as shown in Fig. 3, the base of the lamp may be first mounted on the arm 6 and then the lamp tube snapped into position on the arm 7.

Turning now to the construction of the lamp holder and referring to Fig. 4, it will be seen that the bracket 5 comprises two nested channel sections 9 and 10. The lower section 10 is pro-

vided at opposite ends with openings 11 and 12 for receiving the arms 6 and 7, respectively. This section is also provided with a nipple 13 for mounting the bracket on the supporting stud of the lamp fixture. In turn, the upper section 9 is likewise provided with a nipple 14 for carrying another stud of the lamp fixture which may be used to support the lamp shade or an additional lamp holder in the manner indicated by Fig. 1. A set screw 15 locks the bracket in position on the stud.

As shown by Fig. 5, the laterally extending arm 6 is formed of any suitable insulating material, such as a molded plastic. It is provided with flanges or abutments 16 at each end which rest on the inner surface of the channel section 10 with the main body of the arm extending through the opening 11 in the section. The arm is clamped in position by snapping the upper section 9 into nested position on the lower section so that the upper section bears against and rests on the bracket. In order to engage the periphery of the lamp, the arm 6 is provided with a curved portion 17 which has an outline corresponding to the curvature of the lamp tube. Thus, the arm fits around the inner periphery of the lamp in the manner shown by Fig. 4.

In order to make an electrical connection with the lamp base, the arm 6 is provided with an electrical connector or receptacle 18 preferably formed of molded soft rubber. Four contact sleeves 19 are assembled within the connector and carry corresponding conductors 20 for making an electrical connection therewith. In manufacture, the contact sleeves 19 are first fastened to the conductors 20 and then the soft rubber body of the connector is molded around them to form the completed article. The premolded connector 18 is then molded into the arm 6, the connector being positioned such that it extends slightly from the curved surface 17. In this way, the contact sleeves 19 are adapted to receive and make an electrical connection with the contact pins 21 formed in the base 22 of the circular lamp.

The other arm 7 is formed of insulating material, such as a molded plastic, and is provided with a curved surface 23 having an outline corresponding to the curvature of the lamp tube. It is adapted to extend over and engage the tube of the lamp in the manner shown by Fig. 4. It carries a frictional contact button 24 of any suitable material, such as soft rubber, for frictionally engaging the wall of the lamp to aid in maintaining the lamp in seated position on the holder. The arm 7 is pivotally mounted in the lower section 10 of the bracket by means of a pin 25 and the arm extends downwardly through the opening 12 in the bracket into engagement with the lamp. A U-shaped spring 26 is located in the space formed by the channel sections. One end of the spring is fastened to section 9 in any suitable manner, as by a rivet 27. The other end engages the arm 7 and biases it about the pivot 25 into engagement with the wall of the lamp.

As pointed out in connection with Figs. 2 and 3, the lamp may be first mounted in either one of the extending arms 6 or 7 and then snapped into position in the other arm. The arms 6 and 7 are movable relatively to each other so that they may be moved together for insertion in the loop of the lamp. The spring biased arm 7 tends to pull the lamp pins more firmly into engagement with the receptacle contacts 19 and to hold the lamp base firmly in position on the arm 6. It should be noted that the spacing between the arms 6 and 7 may vary considerably due to the fact that the arm 7 is movable relatively to the fixed arm 6 so that the arms will compensate for any variations in the diameter of the lamp due to manufacturing tolerances. The curved surfaces of the arms extend to a considerable extent around the curvature of the lamp tube so that there is no danger of the lamp falling out of the holder when it is suspended from the holder, in the position shown by Fig. 4. The arms 6 and 7 hold the lamp firmly in position at all times even when the holder is subjected to considerable vibration since the lamp is supported at two points along its periphery. No appreciable shadow is cast by the lampholder when used in conjunction with the circular fluorescent lamp. Since the electrical connector 18 is formed of resilient molded material, it permits a certain limited movement of the receptacle contacts 19 so that there is no danger of bending the lamp contact pins when removing the lamp from the holder.

While in the construction thus far described, my lamp holder is designed to support only one circular fluorescent lamp, it will be manifest that it may be adapted to support a plurality of such lamps simply by increasing the length of the bracket 5 and adding a number of pairs of arms corresponding to the number of lamps to be supported. Such an arrangement is shown in Fig. 6 in which the lamp holder 2 is mounted on a stud 29 of a lighting fixture. The lamp holder is provided with three pairs of arms 6 and 7 to accommodate circular fluorescent lamps of three different diameters. This same arrangement is shown by Fig. 7 in which the lamp holder 2 is suspended from the ceiling fixture 30.

Figs. 8 and 9 illustrate a modified form of lamp holder in which the bracket 5 is formed in a different manner and in which the movable arm is slidably mounted on the bracket instead of being pivotally mounted thereon. To this end, I form the bracket as a sheet metal channel section 31 of generally circular configuration to accommodate the conductors making an electric connection to the lamps. This channel section is provided with spaced sides 32 and 33 forming a guideway for a movable arm 34. The arm 34 is constructed of insulating material, such as sheet fiber, and is slidably mounted on a rod 35. It is spring biased toward the end of the bracket by a compression spring 36 mounted on the rod 35. One end of the spring engages the arm and the other end is fastened to a pin 37 carried in the wall of the channel 31. Movement of arm 34 is limited by an ear 38 formed in the side wall 32 and extending across the space between the walls. The arm 34 is provided with a curved surface 39 for engaging the tube of the lamp in the same manner as the arm 7.

In the form of the invention illustrated in Fig. 8, the electrical connector 18 is mounted between two spaced fingers 40 formed integrally with the side walls 32 and 33. The fingers are crimped around the electrical connector to hold it firmly in position and are provided with curved surfaces 41 corresponding to the curvature of the lamp base so that the base may be seated in position on the lamp holder with the lamp contact pins engaging the electrical connector 18. Spaced ears 42 extend laterally from opposite ends of the channel 31 and serve to mount it in position on a lamp fixture, or the like. The lamp is mounted

in position on the lamp holder simply by moving the arm 34 back against the action of the compression spring to permit the arms 34 and 40 to be inserted in the loop of the lamp. Thereafter, the compression spring holds the arm 34 in engagement with the periphery of the lamp and maintains the contact base in seated position on the electrical connector 18.

The operating circuit for a circular fluorescent lamp is shown in diagrammatic form in Fig. 11. Filaments 43 at each end of the glass envelope are connected across a suitable 110 volt A.-C. power supply including a ballast for controlling the operation of the lamp. A starting switch 44 is connected in series with the lamp filaments for starting the lamp. Such starting switches are well known in the art and may be of either the glow switch, magnetic or thermal type. When the starting switch operates, the ballast provides an inductive kick for starting the lamp. In one form of my lamp holder, I make provision for mounting the starting switch 44.

As shown in Fig. 9, the channel 31 carries a socket 45 having spaced contacts 46 for receiving the contacts of a starting switch of the type described. To hold the socket 45 in position, the side walls 32 and 33 of the channel are simply pressed out around the socket so that it is frictionally held in position. The advantage of this arrangement is that the starting switch is mounted in a convenient location on the lamp holder where it is readily accessible for replacement. It is in a position immediately adjacent the base of the lamp, as indicated in Fig. 6, so that it forms part of the lamp holder construction and presents a pleasing appearance.

While in the forms of the invention thus far described, the movable arm for engaging the lamp tube has been shown as pivotally or slidably mounted, it should be manifest that this arm may be mounted in other ways to provide for relative movement between the two spaced lateral arms which support the lamp on the holder. Another such method of mounting the arm is shown in Fig. 10. In this construction the movable arm 7 is carried by a rod 47 which extends upwardly through openings 48 and 49 formed in the channel sections of the bracket. The rod 47 is provided with an enlarged head or abutment 50 and a coiled spring 51 is disposed between the head 50 and the upper section 9 of the bracket. The opening 48 in the lower bracket 10 is made large enough to provide for a combined pivoted and sliding movement of the arm 7. In this way, the arm 7 may be moved back and forth to permit mounting of the lamp. It is returned into biasing engagement with the lamp tube by the action of spring 51. The mounting construction for the arm 7 illustrated in Fig. 10 may be utilized in the lamp holder construction of Fig. 4.

While my lamp holder is particularly adapted for use with circular fluorescent lamps of the type now on the market, it should be manifest that it may be used equally as well with lamps having other configurations. For example, the loop of the lamp may be formed as a square or an elipse. The particular shape of the lamp may be varied in accordance with the decorative scheme of the lighting system. When using the lamp holder of Figs. 6 and 7 in which a plurality of lamps are mounted on the holder, different colored lamps may be used, to give a pleasing decorative effect. In the form of the invention illustrated, I have shown the relatively movable arms 6 and 7 as engaging the inner walls of the loop of the lamp but it will be apparent that they may be arranged to engage the outer walls of the lamp equally as well without departing from the spirit of my invention.

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

1. A lamp holder for a tubular lamp formed as a loop and having a contact base in its periphery comprising, in combination, a supporting bracket adapted to extend across the loop of the lamp, a member extending laterally from said bracket and being provided with a curved surface extending around a portion of the periphery of the lamp, a contact receptacle located in the curved surface of said member and adapted to engage the contact base of the lamp for making an electrical connection therewith, and a second member slidably mounted on said bracket and extending laterally therefrom, said second member being provided with a curved surface for engaging and supporting the periphery of the lamp at a point spaced from the contact base of the lamp, and spring means for biasing said second member into engagement with the lamp.

2. A lamp holder for a tubular lamp formed as a loop and having a contact base in its periphery comprising, in combination, an elongated supporting bracket adapted to extend across the loop of the lamp, a member extending laterally from said bracket and being provided with a surface extending around a portion of the periphery of the lamp, a contact receptacle carried by said member and adapted to engage the contact base of the lamp for making an electrical connection therewith, a second member movably mounted on and extending laterally from said bracket for engaging and supporting the periphery of the lamp at a point spaced from the contact base of the lamp, and an electrical receptacle carried by said bracket for receiving a starting switch to start the lamp.

3. A lampholder for a tubular lamp formed as a loop and having a contact base in its periphery comprising an elongated bracket of substantially uniform cross section adapted to extend across the loop of the lamp, a pair of similarly shaped finger-like lamp engaging projections extending from one surface of said bracket for engaging and supporting opposite sides of the loop of the lamp, both of said projections having a concave curved surface adapted to engage the periphery of the lamp, a contact receptacle carried by one of said projections and adapted to engage the contact base of the lamp for making electrical connection therewith, the other of said projections being pivoted to said bracket and being spring tensioned with respect thereto in a direction away from said receptacle-carrying projection.

4. A lampholder for a circular tubular lamp having a contact base at one place in its periphery comprising a supporting bracket, a plurality of similarly shaped fingerlike lamp engaging projections extending from said bracket and disposed with similar portions in the plane of the lamp, each of said projections having a concave surface facing the lamp and adapted to engage the periphery of the lamp tube, contact receptacle means carried by one of said projections and adapted to engage the contact base of the lamp for making electrical connection therewith, another of said projections being movable with respect to said bracket and spring means for biasing said movable projection into engagement with the lamp.

5. A lampholder for a circular tubular lamp having a contact base at one place in its periphery comprising a supporting bracket, a plurality of similarly shaped fingerlike lamp engaging projections extending from said bracket and disposed with similar portions in the plane of the lamp, each of said projections having a concave surface facing radially outward from the center of the lamp circle and adapted to engage the periphery of the lamp tube, contact receptacle means carried by one of said projections and adapted to engage the contact base of the lamp for making electrical connection therewith, another of said projections being movable with respect to said bracket and spring means for biasing said movable projection into engagement with the lamp.

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