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2,356,601

ADAPTER FOR DISCHARGE LAMPS

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Fig. 1.

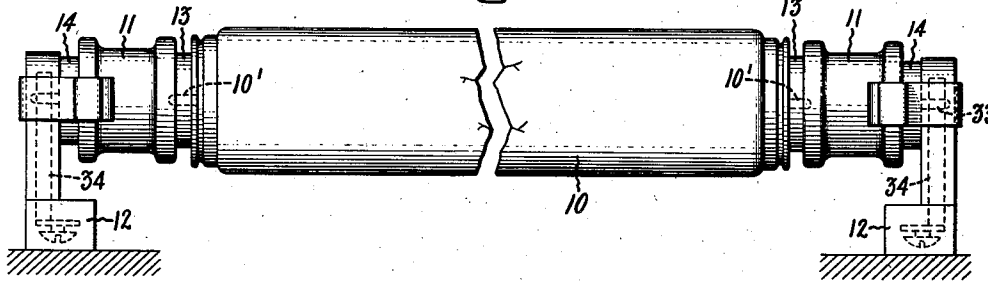


Fig. 2.

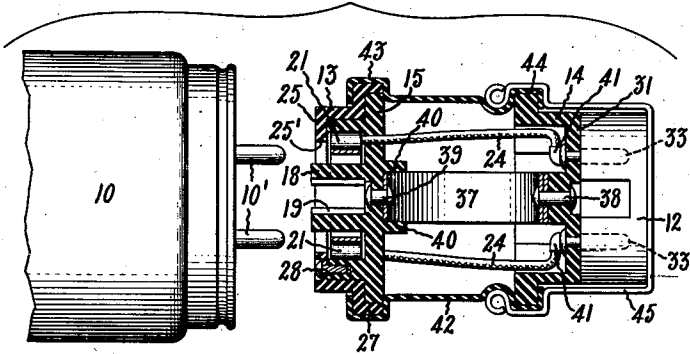


Fig. 3.

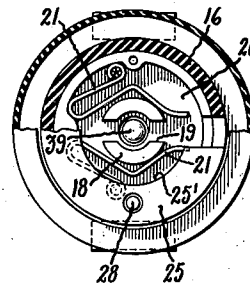
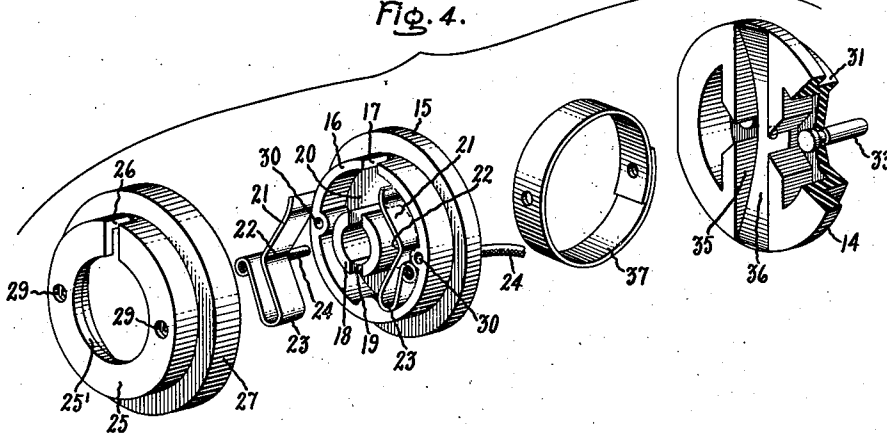


Fig. 4.



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ADAPTER FOR DISCHARGE LAMPS

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7 Claims. (Cl. 173-344)

My invention relates to a socket adapter for lamps and more particularly to an adapter for use with tubular discharge lamps of the type now on the market, for example, fluorescent lamps.

The object of my invention is to provide a new and improved adapter for resiliently mounting a discharge lamp in a conventional socket so that the lamp is cushioned against shocks.

In the accompanying drawing, Fig. 1 shows a discharge lamp supported at each end in adapters constructed in accordance with my invention; Fig. 2 is a sectional view through the adapter; Fig. 3 is an end view of the adapter, partly in section, and Fig. 4 is an exploded view of the elements of the adapter.

Referring to the drawing, I have shown a tubular discharge lamp 10, such as a fluorescent lamp, supported at each end by an adapter 11 constructed in accordance with my invention which, in turn, is mounted in a lamp holder 12. The lamp holders 12 are of a conventional type and form no part of the present invention so that they have not been illustrated in detail. Preferably, they are of the type illustrated and described in Reissue Patent 21,545, issued to Anthony J. Marshaus on August 27, 1940 and assigned to the same assignee as the instant application.

The adapter 11 is provided with a receptacle portion 13 for receiving the contact pins 10' of the discharge lamp and a plug portion 14 for mounting the adapter on a lamp holder. Preferably, the receptacle portion is so formed that the lamp may be locked therein by rotation so that it cannot become dislodged by jars or shocks and the plug portion is constructed with a contact structure such that it can be mounted in any lamp holder capable of mounting a standard discharge lamp.

To this end, the receptacle portion is provided with a base member 15 of any suitable insulating material, such as a molded plastic. Formed integrally with the base member is an annular flange or extension 16 having a slot 17. Within the confines of the area defined by the flange 16 is a guide member 18 provided with a diametrical groove 19. The guide member and flange together form a chamber 20 in which spaced contact members 21 are seated. Each contact member is formed of strip material and is provided with a curved portion 22 forming a contact engaging surface. The end of each contact member is bent back in the form of a loop, as indicated at 23, the end of the loop being secured in any

suitable manner, as by soldering, to conductors 24. The contact members are disposed in the chamber 20, one on each side of the guide member 18 so that the contact surfaces 22 engage opposite walls of the guide member 18.

A closure cap 25 overlies the base member 15 and holds the contact members in seated position. This closure cap is provided with an annular recess 25' and a slot 26 which extends from the recess to the outer edge of the cap and which, when the cap is mounted on the base, is in alignment with the slot 17 in the base 15. In addition, the cap is provided with an annular flange 27 which overlies the base 15, in the manner shown by Fig. 2. The elements are held together by drive pins 28 which extend through openings 29 in the cap into suitable recesses 30 in the base. In mounted position, that portion of the cap formed with the recess 25' overlies the chamber 20, as shown in Fig. 2, so that the contact members 21 are held securely in position.

In mounting the lamp in position on the receptacle portion the contact pins 10' are moved in alignment transversely to the axis of the lamp through the slot 23 and groove 19 until one pin engages the wall of the recess 25'; thereafter, the lamp is rotated to move the lamp pins into engagement with the contact members. The contact arrangement of the receptacle portion thus far described is similar to that of the aforementioned Marshaus patent.

The plug portion 14 of the adapter includes a supporting member 31 of any suitable insulating material, such as a molded plastic, which is provided with contact prongs 33 for cooperation with contact members 34 of the lamp holder 12. The supporting member 31 is provided with a diametrical groove 35 having a curved inner surface 36 for receiving a supporting spring 37, the purpose of which is now to be described.

The spring 37 is made of flexible resilient material and is formed as an annulus. It is secured to the supporting member 31 by any suitable fastening means, such as a rivet 38 extending through the rim thereof. The spring 37 rests in the diametrical groove 35 and bears against the curved bottom portion of the groove, as shown in Fig. 2; it is likewise connected to the base 15 of the receptacle by a rivet 39 extending through the rim at a point diametrically opposite the rivet 38. In order to hold the spring in alignment on the base 15, the latter is provided with a groove 40 formed by spaced integral projections in which the spring is seated. The conductors 24 are connected to the contact prongs

33 of the plug, as shown at 41 in Fig. 2 so that the contact prongs 33 are in electrical engagement with the contact members 21 of the receptacle.

The resilient spring 37 forms a shock-proof support for the receptacle portion 13 of the adapter so that it absorbs any shocks or jars transmitted to the lamp holder and protects the lamp from damage. This is of particular importance if the lamp is installed in locations which are subjected to a great deal of vibration, such as in buildings housing heavy machinery. It has been found that the resilient spring 37 is well able to cushion such jars and vibrations, thereby protecting the filaments of the lamp from damage and greatly increasing the life of the lamp. Since the spring 37 is disposed in the diametrical groove 35 in the base and a similar groove 40 in the receptacle, pivotal movement of the spring relatively to either the receptacle or plug is prevented. This means that the receptacle end of the adapter may be gripped in the hand and the entire adapter inserted in a suitable lamp holder by turning movement without causing relative movement between base 14 and the receptacle 13. This means that the adapter may be easily mounted in position on a lamp holder by rotary movement; moreover, rotation between the parts 14 and 15 is prevented so that the conducting wires 24 are not in danger of becoming twisted or broken.

In order to protect the conductors 24 and to insulate the exposed inner ends of the contact prongs 33, the plug and receptacle are covered by means of a resilient sleeve 42 made of suitable insulating material, such as rubber. The sleeve is so formed that at one end it overlies the flange 27 of the receptacle cap, as indicated at 43 in Fig. 2, and at the other end overlies a flange of the supporting member, as indicated at 44. The sleeve will be maintained in position by the inherent resiliency of the rubber material of which it is constructed.

In most instances, the adapter may be secured to the lamp holder 12 simply by inserting it in the holder in engagement with the contact pins. However, in certain cases, it may be desirable to provide an additional fastening means between the adapter and the holder, particularly in those instances where the lamp is a long one and where it will be subjected to extreme vibration. To this end, I provide a U-shaped clip 45 formed of sheet metal or other suitable material, the arms of the U extending around the supporting member 31 and overlying the sleeve 42, as shown by Fig. 2. The central portion of the U-shaped clip extending around the back of the lamp holder 12 holds the plug portion of the adapter securely in seated position. The clip may be made of spring material so that it snaps over the adapter and lamp holder. An additional advantage of using the clip is that it prevents rotation of the adapter in the lamp holder 12 when the lamp is rotated into seated position since the arms of the clip tightly and frictionally engage the plug portion 14 through the rubber sleeve 42. This means that it is unnecessary to hold the adapter with one hand when rotating the lamp so that the lamp may be easily mounted in position.

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

1. A lamp adapter comprising a supporting member having contact means for engaging a lamp holder, said member being provided with a groove, a resilient annulus, a portion of the

perimeter of which is seated in said groove and fastened to said member, and a base having contact means for receiving lamp prongs fastened to another portion of the perimeter of the annulus opposite said supporting member and being resiliently carried thereby and conducting means electrically interconnecting the contact means on said supporting member and base, the centerline of the annulus being perpendicular to the centerline of the supporting member and base.

2. A lamp adapter comprising a supporting member having spaced contact pins for engaging a lamp holder, a receptacle member having spaced contact members for receiving the contact prongs of a lamp upon rotation of the lamp, a resilient annulus, and conducting means for electrically interconnecting said contact pins and contact members, said supporting member and said receptacle member each being provided with a groove, portions of the rim of said resilient annulus being seated in each one of said grooves and the annulus being fastened to said supporting member and receptacle member, respectively, whereby rotation between said members is prevented upon seating of a lamp in the receptacle member by rotation.

3. An adapter for use with a lamp having spaced contact prongs comprising, in combination, a base of insulating material, spaced contact members carried by said base for cooperation with the lamp prongs, a supporting member having contact members for engaging a lamp holder, conductors electrically interconnecting the contact members on said base and supporting member, a resilient annulus the perimeter of which is connected to both the base and the supporting member whereby the base is resiliently carried by said supporting member, and a sleeve of insulating material fastened to the base and supporting member and surrounding the resilient annulus and electrical conductors.

4. An adapter for use with a lamp having spaced contact prongs comprising, in combination, a base of insulating material, spaced contact members carried by said base for cooperation with the lamp prongs, a supporting member having contact members for engaging a lamp holder, conductors electrically interconnecting the contact members on said base and supporting member, spring means carried by said supporting member and secured to said base for resiliently supporting said base on said supporting member whereby the lamp is cushioned from shock, and a U-shaped clip having leg portions connected to said supporting member and other leg portions and a base for engaging the sides and back respectively of a lamp holder.

5. The combination of a lamp having spaced contact prongs, a lamp holder and an adapter between the lamp and the holder, said adapter comprising a base of insulating material, spaced contact members carried by said base, the lamp prongs being rotated into engagement with said contact members, a supporting member having contact members for engaging a lamp holder, said supporting member being mounted on the lamp holder by rotation, conductors electrically interconnecting the contact members on said base and supporting member, spring means carried by said supporting member and secured to said base for resiliently mounting said base on said supporting member whereby the lamp is cushioned from shock, and means cooperating with said supporting member and the lamp holder comprising a clip connecting the adapter to the holder for pre-

venting rotation of the supporting member relative to the lamp holder upon rotation of the lamp into seated position on said base.

6. In an electrical appliance the combination of two axially spaced disk members of insulating material having openings, electrical connectors extending through openings of the disk members, and a resilient annulus disposed between the adjacent surfaces of the members with its centerline perpendicular to that of the disk members and diametrically opposite portions secured to central portions of the respective disk members to reduce the transmission of shock between them and to prevent relative rotary movement between them.

7. In an electrical appliance the combination of an insulating disk member having a surface

with a groove extending along a diameter thereof, another insulating disk member having a surface with a groove extending along a diameter thereof substantially parallel with and facing the other groove, electrical contact means supported on one disk member, and electrical connector means extending from said contact means through the other disk member and an annulus having one diameter parallel and in a plane with the grooves and diametrically opposite portions located in the respective grooves and engaging opposite wall portions of each groove angularly to position the disk members and to prevent relative rotary movement between the disk members and to reduce the transmission of shock between them.

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