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MULTIPLE WIRE CONNECTING MEANS

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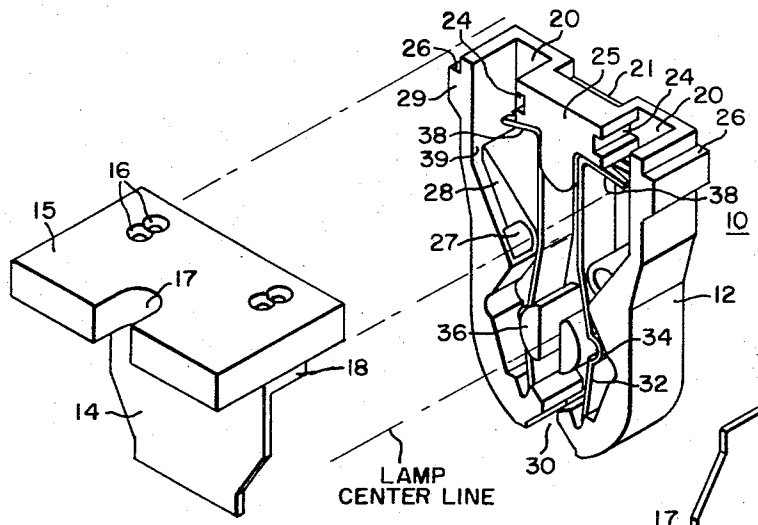


FIG. 1.

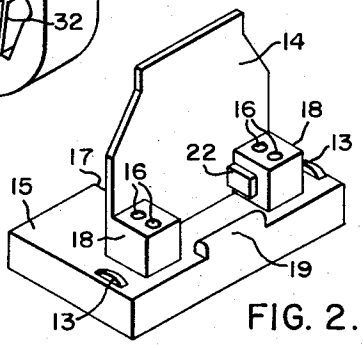


FIG. 2.

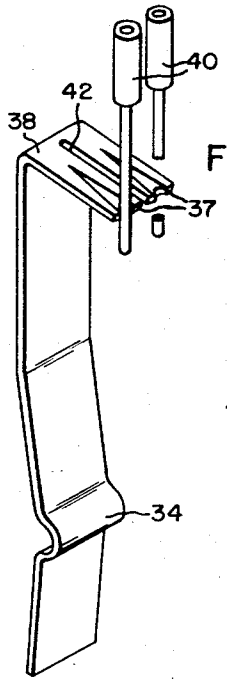


FIG. 5.

FIG. 4.

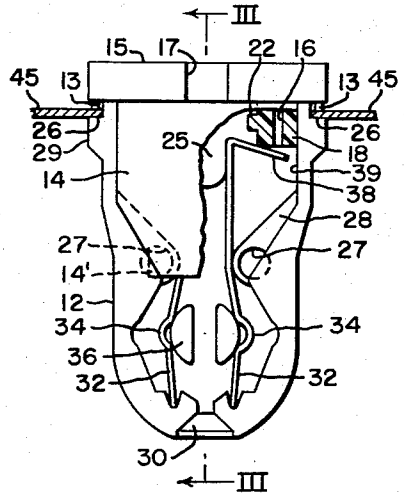
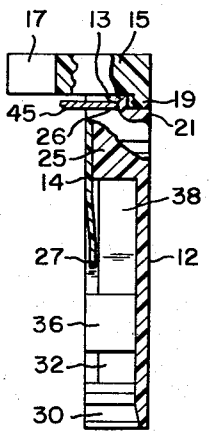


FIG. 3.



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MULTIPLE WIRE CONNECTING MEANS

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ABSTRACT OF THE DISCLOSURE

A lampholder comprising an insulating housing having an open face portion and oppositely disposed lamp pin and connecting wire receiving end portions. The housing is adapted to receive and hold a resilient, mounting platform and integral cover means in a convenient snap-in manner, the platform adapted to cover the connecting wire end portion of the housing, and the cover means adapted to cover a portion of the open face of the housing. This is accomplished by providing the resilient cover-platform means with integral corner and raised portions, and the housing with slotted portions for receiving the corner and raised portions of the cover-platform means. The raised portions of the cover-platform means include a raised portion disposed adjacent one edge of the platform extending in the general direction of the cover. The slotted portions in the housing include a depression in one edge of the connecting wire end portion thereof for receiving the raised portion disposed adjacent the one edge of the platform.

The present invention relates to wiring devices such as lampholders, and particularly to a simple and economical fluorescent tube lampholder housing and support structure that greatly facilitates both the ease of assembly in the manufacture thereof and ease of wiring by the user of the devices.

In fluorescent tube lampholders where quick wire attachment is provided by means of an arrangement having resilient wire engagement spring means, it is generally desirable that the wire engagement arrangement be economically organized to provide those functional features identified with user efficiency. In the particular case where two or more spring means or resilient arms are provided on a single spring or terminal member for engaging respective wires inserted side-by-side, it is desirable that the overall structure assure wire separation so as to avoid confusion and unreliability associated with physical interference between adjacent wires at the point of attachment. Further, the nature of such lampholders should require components that are simple to assembly for high volume production and economical construction.

With these goals in mind, there is provided in accordance with the principles of the present invention a wiring device or lampholder comprising an insulating housing within which there is disposed at least one terminal means and at least two generally parallel resilient wire engagement arms preferably integral with the terminal means. A portion of a front face and one end of the housing is closed with an L or T-shaped molded cover plate provided with separate holes therein in alignment with the resilient engagement arms. The separate holes permit a plurality of wire leads to be simply inserted into the end of the device in the easily accessible holes in a line of sight manner that ensures neat, positive lead alignment negating confusion of the leads which often results in lead ends coming loose thereby interrupting service and creating hazardous conditions with exposed, dangling live wires. The insulating housing is further provided with a groove or slot on the lower side portions thereof that permits the housing to be easily slipped into a rectangular shaped slot or cutout provided in a light fixture structure. The insulating cover is further provided with a platform (part of the T-shape) having a hole therein designed to receive a screw or similar means for attaching the lampholder to a light fixture surface. Yet another feature of the present construction is the low cost means for securing the molded cover to the lampholder housing without the use of screws or rivets. This is accomplished by providing molded notches or recesses in the housing and molded matching bumps or bosses on the cover so that the cover will snap into place when forced into position with the housing. This latter feature is further enhanced by using a thermoplastic cover that is more resilient for easy insertion and is less costly to mold and process than thermosetting materials required by underwriters for physically holding current conducting components; the present molded cover, of course, functions only as a cover in the novel combination of means disclosed herein.

Accordingly, it is an object of the present invention to provide an effective quick wiring device or lampholder with means for ensuring positive alignment of a plurality of wire leads that is simple, inexpensive and efficient.

Another object of the invention is to provide a unique quick wiring device having a housing with separate, line-of-sight wiring holes that are easily accessible at one end of the housing.

Yet another object of the invention is to provide a quick wiring device in which separate wiring holes are formed as an integral part of a low cost, resilient cover means that allows quick and efficient assembly of the device for high volume production.

A further object of the invention is to provide a quick wiring lampholder and cover structure that simplifies lampholder mounting on a light fixture with means for simultaneously ensuring a snug fit on the fixture.

These and other objects of the invention will become more apparent upon consideration of the following detailed description along with the attached drawing, in which:

FIGURE 1 is a perspective view of a lampholder constructed in accordance with the principles of the invention;

FIG. 2 is a perspective view of a cover platform used in the lampholder of FIG. 1;

FIG. 3 is a side elevation view of the lampholder housing with the cover and platform attached thereto, and with portions thereof shown in partial cross-section;

FIG. 4 is a front elevation view of the lampholder shown in FIG. 1 with a part of the cover broken away; and

FIG. 5 is a perspective view of a quick wiring terminal means used in the lampholder shown in FIGS. 1 and 4.

Specifically, there is shown in FIG. 1 a wiring device or a lampholder **10** of the fluorescent tube type comprising an insulating housing **12** and an insulating cover **14** molded with a platform or lateral extensions **15** designed to facilitate mounting of the lampholder **10** to a lighting fixture (not shown). Lampholder **10** is generally provided with a geometry within industry dimensional standards such that a pair of lampholders **10** can be used to support a fluorescent lamp (not shown) in a standard or other fluorescent light fixture.

As is generally well known, a fluorescent lamp may be secured between two holders **10** by guiding its terminal pins in line through opening **30** in housing **12**, and twisting the lamp so that the two terminal pins engage spring contacts **32** and finally seat in the indents **34** provided in contacts **32** adjacent housing bosses **36**. The lamp is energized through wire leads inserted to quick wiring terminal ends **38** which are an integral part of spring contacts **32** as best shown in FIG. 5.

Lampholder housing **12** and cover plates **14** and **15** are held together by a unique combination of notches and matching projections provided thereon in such a manner that the cover and housing will snap into place when placed together with a slight force. In FIGS. 1 and 3, housing **12** is shown to be provided with a notch **21** provided in the back side thereof that seats a raised portion or projection **19** provided on the top surface of cover plate **14** as shown in FIGS. 2 and 3. When a resilient cover plate **14** is forced against housing **12**, projection **19** snaps over the bottom edge of housing **12** into a notch or depression **21** thereby securing the two structures together.

Inside of housing **12** near the bottom thereof is a raised portion **25** designed to support quick wiring terminals **38**, and with the wall structures of housing **12** parallel thereto forms two channels **20** (FIG. 1) designed to receive two block shaped portions **18** provided on cover plates **14** and **15**. Channels **20** and block portions **18** guide and center components **12** and **14** when they are placed together. On the inside corners formed by block portions **18** with cover plate wall **14** (FIG. 2) are second, smaller block shaped portions **22** that seat into corresponding notches **24** (FIG. 1) provided in raised portion **25** of housing **12**. Notches **24** and block portions or projections **22** prevent the separation of cover **14** and housing **12** in a direction along the longitudinal axis of housing **12** when the two components (**12** and **14**) are placed together.

To engage cover plates **14** and **15** with housing **12**, the corners **14'** (shown in phantom in FIG. 4) of the upper edge of cover wall **14** are first inserted into slotted or cutout portions **27** (FIG. 1) provided immediately inside the front face of housing **12** thereby retaining wall **14** in a covering position over quick wiring terminals **38** and the lower half of spring contact arms **32**. The platform portion **15** of the cover is next guided along the bottom edge of housing **12** until projection portion **19** snaps into place in bottom slot **21** provided in the back of housing **12** described earlier. Cover plate portions **14** and **15** are made of a resilient material such as a thermoplastic material, so that it is easily bent to engage corners **14'** and platform portion **15** with housing **12**. Thus, lampholder **10** is simple and easy to assemble and manufacture. Wall **14** of the cover plate rests on ledges **28** (FIG. 1) and raised portion **25** after lampholder **10** is assembled.

In FIGS. 3 and 4, housing **12** and cover plate portions **14** and **15** are shown assembled to form the lampholder wiring device **10**. The bottom end of device **10** is thus provided with separate wiring holes **16**, as best shown in FIG. 1, with a hole **16** disposed substantially directly beneath a corresponding edge **37** (FIG. 5) of quick wiring terminal **38**. One hole is provided for each terminal arm **38** so that the lead wires **40** (FIG. 5) are maintained in individual, line-of-sight alignment for ease of manipulation in inserting and removing the wires. By line-of-sight, it is meant that the lead wire holes are provided in the end of wiring device **10** which is generally the direction from which the user of the device would view device **10** when working with it. Holes **16** are thus easily accessible (in line) to the user of device **10**.

As best seen in FIG. 2, the upper surface of platform **15** is provided with two raised portions **13** adjacent block portions **18**. Raised portions **13** simply ensure a snug fit between lampholder **10** and the metal bracket support structure that forms a part of a light fixture, not shown. In FIG. 4 a portion of the bracket structure is shown in cross section and labeled with numeral **45**. Bracket **45** is forced against the bottom surface of side flanges **29** (on housing **12**) by raised portions **13** when lampholder **10** is placed into a cutout area provided in the edge of the bracket structure. By such means lampholder **10** is held secure in the light fixture edge while in the assembly process. The flanges **29**, provided on the sides of the housing **12**, form slotted side portions **26** adjacent the connecting wire end of the housing as best seen in FIG. 1. These slotted portions receive the edges of the bracket structure **45** as shown in FIG. 4.

Cover platform **15** is further provided with a hole **17** designed to receive a screw or similar means so that lampholder **10** may be easily attached to a light fixture surface such as that formed by bracket **45** shown in partial cross section in FIG. 4.

FIG. 5 shows in perspective the quick wiring means employed in the unique lampholder **10**. Two current carrying leads **40** are shown with bared ends inserted into two wire engagement arms **38**. The end edges of arms **38** have V-shaped indented ends **37** for seating the bared wires. Indented ends **37** cooperate with an inside ledge opposite thereto of housing **12** to form a wire bracing surface **39** (FIG. 1) which positively secure lead wires **40** in housing **12**. Arms **38** are further separated by a slit **42** extending the substantial length of the arms. Slit **42** ensures arm flexibility and firm, individual securing of the separate wires held thereby.

It should now be apparent from the foregoing description that a novel wiring device or lampholder has been disclosed that is particularly easy and inexpensive to manufacture yet provides a very reliable wiring structure that ensures retention of wire leads. This is accomplished by providing separate holes on one end of the device so that the holes are clearly in view of and easily accessible by the user. Thus, a hole is provided for each head so that the identity of the leads is maintained at the point of attachment, and each lead can be inserted and secured in a quick-wiring-terminal with certainty of its retention by the terminal. The unique device disclosed herein further includes a low cost flexible cover that contains the separate holes as well as a hole for receiving a means to secure the device to a light fixture; no other securing means is necessary. Neither are separate means necessary for securing the cover to the housing. By a series of notches and matching bosses and projections, the cover is simply and quickly snapped onto the housing thus facilitating assembly of the device for high volume production.

Though the invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that changes in details, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention.

What is claimed is:

1. A lampholder device comprising an

insulating housing having oppositely disposed lamp pin and connecting wire receiving end portions, and at least one open face portion,

mounting platform and integral cover means made from a resilient plastic material, the cover-platform means adapted to cover respectively the open face and the connecting wire end portions of the housing,

the cover and platform disposed in planes substantially perpendicular to each other,

the cover-platform means being provided further with integral corner and raised portions for engaging the housing, the raised portions including a raised portion disposed adjacent one edge of the platform and extending in the direction of the cover,

slotted portions provided in the housing for receiving the raised and corner portions including a slotted depression provided in one edge of the connecting wire end portion of the housing for receiving said raised portion disposed adjacent the one edge of the platform in a snap-in manner,

the housing and the cover-platform means being secured together by the engagement of the slotted and raised portions respectively when said raised portion adjacent the one edge of the platform is snapped into the slotted depression provided in the one edge of the housing.

2. The lampholder device described in claim 1 wherein the platform is provided with a hole for receiving a means to fasten the lampholder device to a light fixture,

the platform further having a plurality of separated apertures adapted to be in substantial respective alignment with end edge portions of wire engagement means disposed within the housing when the cover-platform means is disposed in snap-in engagement with the housing.

3. The lampholder device described in claim 1 wherein the cover-platform means is molded from a thermoplastic material.

4. The lampholder device of claim 1 wherein the insulating housing is provided with slots in the sides thereof adjacent the connecting wire end thereof, and

the platform is provided with raised portions on the side thereof facing the slots provided in the housing

when the cover-platform means is disposed in snap-in engagement with the housing.

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